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10/017,221	12/13/2001	Nathan S. Lewis	CIT1300-1	9894

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FISH & RICHARDSON, PC
12390 EL CAMINO REAL
SAN DIEGO, CA 92130-2081

EXAMINER	
NOGUEROLA, ALEXANDER STEPHAN	

ART UNIT	PAPER NUMBER
1753	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/017,221	LEWIS ET AL.	
	Examiner	Art Unit	
	ALEX NOGUEROLA	1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-15 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-15 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 13 December 2001 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 09202002.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☒ Other: IDS of 11252002 and 12022002.

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claim 1 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,350,369 B1. Although the conflicting claims are not identical, they are not patentably distinct from each other because the screening system of claim 1 of the instant application is configured to practice the invention of claim 1 of U.S. Patent No. 6,350,369 B1. In particular, the computer of the screening system of claim 1 of the instant application "is operative to compare the sensor array signal profile to at least one previously obtained signal profile from a standard sample not including the analyte of interest and having a known specific activity, chemical or physical property, or function, wherein the comparison of the sensor array signal profile to the at least one previously obtained signal profile is indicative of a specific activity, chemical or physical property, or function of the analyte of interest"; that is, the computer system is configured to perform the comparing step (step (d)) of claim 1 of U.S. Patent No. 6,350,369 B1.

3. Claim 2 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 2 of U.S. Patent No. 6,350,369 B1. Claim 1, from which claim 2 depends, has been addressed above. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 2 of U.S. Patent No. 6,350,369 B1 provides the same additional limitation as claim 2 of the instant application.

4. Claim 3 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 3 of U.S. Patent No. 6,350,369 B1. Claim 2, from which claim 3 depends, has been addressed above. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 3 of U.S. Patent No. 6,350,369 B1 provides the same additional limitation as claim 3 of the instant application.

5. Claim 4 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 4 of U.S. Patent No. 6,350,369 B1. Claim 3, from which claim 4 depends, has been addressed above. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 4 of U.S. Patent No. 6,350,369 B1 provides the same additional limitation as claim 4 of the instant application.

6. Claim 5 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 5 of U.S. Patent No. 6,350,369 B1. Claim 4, from which claim 5 depends, has been addressed above. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 5 of U.S. Patent No. 6,350,369 B1 provides the same additional limitation as claim 5 of the instant application.

7. Claim 6 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 6 of U.S. Patent No. 6,350,369 B1. Claim 5, from which claim 6 depends, has been addressed above. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 6 of U.S. Patent No. 6,350,369 B1 provides the same additional limitation as claim 6 of the instant application.

8. Claim 7 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 7 of U.S. Patent No. 6,350,369 B1. Claim 5, from which claim 7 depends, has been addressed above. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 7 of U.S. Patent No. 6,350,369 B1 provides the same additional limitation as claim 6 of the instant application.

9. Claim 8 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 9 of U.S. Patent No. 6,350,369 B1. Claim 1, from

which claim 8 depends, has been addressed above. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 9 of U.S. Patent No. 6,350,369 B1 provides the same additional limitation as claim 8 of the instant application.

10. Claim 9 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over the combination of claims 1 and 24 of U.S. Patent No. 6,350,369 B1. Claim 1, from which claim 9 depends, has been addressed above. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 24 of U.S. Patent No. 6,350,369 B1 requires the signal profile of the standard sample to be derived from a library. It would have been obvious to provide this feature from claim 24 to the invention of independent claim 1 of U.S. Patent No. 6,350,369 B1 because the invention of independent claim 14, from which claim 24 depends, only differs from the invention of claim 1 of U.S. Patent No. 6,350,369 B1 in that claim 14 requires the plurality of differentially responsive sensors to be "a plurality of chemically-sensitive resistors, each resistor comprising a conductive material and a non-conductive material," that is claim 14 only further species an aspect of the sensor array, but the basic method is the same.

11. Claim 10 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 25 of U.S. Patent No. 6,350,369 B1. Claim 9, from

which claim 10 depends, has been addressed above. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 25 of U.S. Patent No. 6,350,369 B1 provides the same additional limitation as claim 10 of the instant application.

12. Claim 11 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 10 of U.S. Patent No. 6,350,369 B1. Claim 1, from which claim 11 depends, has been addressed above. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 10 of U.S. Patent No. 6,350,369 B1 provides the same additional limitation as claim 11 of the instant application.

13. Claim 12 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 11 of U.S. Patent No. 6,350,369 B1. Claim 1, from which claim 12 depends, has been addressed above. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 11 of U.S. Patent No. 6,350,369 B1 provides the same additional limitation as claim 12 of the instant application.

14. Claim 13 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 23 of U.S. Patent No. 6,350,369 B1. Although the conflicting claims are not identical, they are not patentably distinct from each other because the

screening system of claim 13 of the instant application is configured to practice the invention of claim 23 of U.S. Patent No. 6,350,369 B1. In particular, the screening system of claim 23 of the instant application has the same array of chemically-sensitive resistors as required by claim 13 and the computer of the screening system "is operative to compare the sensor array signal profile to at least one previously obtained signal profile from a standard sample not including the analyte of interest and having a known specific activity, chemical or physical property, or function, wherein the comparison of the sensor array signal profile to the at least one previously obtained signal profile is indicative of a specific activity, chemical or physical property, or function of the analyte of interest"; that is, the computer system is configured to perform the comparing step (step (d)) of claim 23 of U.S. Patent No. 6,350,369 B1.

15. Claim 14 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 12 of U.S. Patent No. 6,350,369 B1. Claim 1, from which claim 14 depends, has been addressed above. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 12 of U.S. Patent No. 6,350,369 B1 provides the same additional limitation as claim 14 of the instant application.

16. Claim 15 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 13 of U.S. Patent No. 6,350,369 B1. Claim 1, from

which claim 15 depends, has been addressed above. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 13 of U.S. Patent No. 6,350,369 B1 provides the same additional limitation as claim 15 of the instant application.

Claim Rejections - 35 USC § 112

17. Claims 1, 2, and 9-15 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for predicting the inhibitory action of alcohols on cytochrome P-450 aniline p-hydroxylation and perhaps some other properties of alcohols or simple organic molecules, such as vapor pressure, does not reasonably provide enablement for predicting or determining the specific activity, chemical or physical property, or function of compounds other than alcohols. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims.

Applicant claims a device that can predict or determine the specific activity, chemical or physical property, or function of an unknown analyte by comparing its signal profile from a sensor array to a collection of sensor array signal profiles from other substances. Claim 1 is unbounded in terms of what the analyte can be and what specific activity, chemical or physical property, or function can be determined or predicted. That Applicant intends for an almost unlimited scope can be seen from claims 4, 5, and 8. Claim 4, for example, states that the analyte can be a lipid, a hormone, a fatty acid, a nucleic acid, a polypeptide, or a carbohydrate. Claim 5,

further states that the analyte can be an antibody, an enzyme, or a protein. Claim 8 states that the specific activity of an enzyme analyte that can be predicted or determined is a binding activity, an inhibitory activity, and a modulating activity. Applicant's only example in his disclosure, however, is predicting "the inhibitory action of a series of alcohols on cytrochrome P-450 aniline p-hydroxylation" (described on pages 22-35 of the specification). This involves passing gas phase alcohols over the sensor array to "train" it with alcohols used as standards and to test the sensor array with unknown alcohols.

With only this example as guidance one with ordinary skill in the art would not be able to use Applicant's invention to predict the specific activity, a binding activity, an inhibitory activity, or a modulating activity of an enzyme, let alone predict the secondary, tertiary, or quaternary structures of proteins, or predict the functions of various antibodies or antigens or RNA or DNA sequences, without undue experimentation, if such predictions could be made at all using a sensor array response profile. Should enzymes, proteins, and nucleic acids be also put into the gas phase and passed over the same array of sensors? How is one with ordinary skill in the art to select the right sensor for the unknown analyte of interest and the specific activity, chemical or physical property, or function of the analtye to be predicted? Can crystalline colloidal array sensors and capacitance sensors (claim 12) be used for enzymes and antibodies? Can these sensors be used to determine any specific activity, chemical or physical property, or function of enzymes and antibodies?

A review of related work in the field shows that others have limited themselves to more modest goals of predicting a particular property on a select type of analyte, such as monitoring

sausage fermentation[1], predicting gasoline properties[2], or discriminating chirality with simple gas sensors[3].

Thus, the scope of claims 1, 2, and 9-15 is too broad because of the almost unlimited scope of the claims in terms of analyte and analyte property, the state of the art and relative skill in the art at the time of invention, the limited guidance and example provided by Applicant's disclosure, the unpredictability of properties of various compounds, and the undue experimentation required to use the analyte screening system.

18. Claims 3-8 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. As discussed in the previous paragraph, with the only disclosed guidance and example being predicting the inhibitory action of alcohols on cytochrome P-450 aniline p-hydroxylation from a sensor array response profile to a gas phase sample, one with ordinary skill in the art would not be able to use Applicant's invention to predict the specific activity, a binding activity, an inhibitory activity, or a modulating activity of an enzyme, let alone predict the secondary, tertiary, or quaternary structures of proteins, or predict the function of various antibodies or antigens or RNA or DNA sequences, without undue experimentation, if such predictions could be made at all.

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[1] Ekov et al. « Monitoring sausage fermentation using an electronic nose, » Journal of the Science of Food and Agriculture (1998), 76(4), 525-532.
[2] Litani-Barzlai et al. « Online remote prediction of gasoline properties by combined optical methods, » Analytica Chimica Acta (1997), 339(1-2), 193-199.

19. Claims 1-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention: in claim 1, line 15 is the phrase "the computer assembling ..." a method of using step in a device claim?

Claim Rejections - 35 USC § 102

20. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

21. Claims 1, 2, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Buchelli (EP 0398706 A2).

Addressing claim 1, Buchelli teaches an analyte screening system (abstract), comprising

a sensor array comprising a plurality of different differentially responsive sensors (Table 1 on page 4 and Figure 2);

a measuring device (Figure 2), connected to the sensor array; and

a computer (Figure 2);

the measuring device detecting a signal from each of the plurality of different differentially responsive sensors when the sensor array is contacted with an analyte of

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[3] Bodenhöfer et al., « Chiral discrimination by Simple Gas sensors, » Transducers '97, June 16-19, 1997

interest and the computer assembling the signals from each of the sensors in the array into a sensor array signal profile (implied by Figures 2 and 3. Figure 2 showing independent signal lines for sending the response of each sensor independently and in parallel to the measuring device. Figure 3 showing in step FC2 that the readings of all the sensors are taken before the first evaluation step);

wherein the computer is operative to compare the sensor array signal profile to at least one previously obtained signal profile from a standard sample not including the analyte of interest and having a known specific activity, chemical or physical property, or function, wherein the comparison of the sensor array signal profile is indicative of a specific activity, chemical or physical property, or function of the analyte of interest (implied by Example I on page 7, for example, which teaches predicting the molecular weight of a polymer. Also, see claim 1, which has the step of providing the computer with a data base of properties of the monomers used to make the polymer whose properties are to be predicted).

Addressing clam 2, the analyte in Buchelli is a polymer (abstract).

Addressing clam 11, the sensors change at least mechanically or physically (for example, pressure sensors, flow sensors. See Figure 2).

22. Claims 1-4, 11, and 12 are rejected under 35 U.S.C. 102(a) as being anticipated by Shiers et al. ("Use of multi-sensor array devices to attempt to predict shelf-lives of edible oils," *Seminars in Food Analysis* **3**, 43-52 (March 1998)).

Addressing claim 1, Shiers et al. teaches an analyte screening system (abstract), comprising

a sensor array comprising a plurality of different differentially responsive sensors (Alpha MOS Fox 3000 and Nordic Sensor Technologies electronic nose (NST 3220). See the page 44; the last paragraph on page 48; and "Electronic Nose FOX Aroma and Odor Sensing System" and "How to obtain a VOC or DOC fingerprint," which were downloaded from the Alpha MOS website);

a measuring device (Alpha MOS FOX 3000. See page 44), connected to the sensor array; and

a computer (implied by use of software packages discussed on page 50);

the measuring device detecting a signal from each of the plurality of different differentially responsive sensors when the sensor array is contacted with an analyte of interest and the computer assembling the signals from each of the sensors in the array into a sensor array signal profile (implied by pages 46 and 48, which discloses some results with the FOX 3000 and Figure 5, which shows processed measurement results from the NST electronic nose);

wherein the computer is operative to compare the sensor array signal profile to at least one previously obtained signal profile from a standard sample not including the analyte of interest and having a known specific activity, chemical or physical property, or

function, wherein the comparison of the sensor array signal profile is indicative of a specific activity, chemical or physical property, or function of the analyte of interest (the figure on page 46, for example, shows four groups of oils with differing rancidity (oxidative states). Also, note that with principal components analysis "knowledge of the sample origin is not required" (page 50)).

Addressing clams 2-4, the analytes in Shiers et al. are organic oils and butter fat (lipid).

Addressing clams 11 and 12, the sensors change electrically (for example sensors made from metal-oxide or conducting polymers. See the bottom of page 48 of Shiers et al. and also page 1 of "How to obtain a VOC or DOC fingerprint").

23. Claims 1-4, 11, 12, 14, and 15 are rejected under 35 U.S.C. 102(a) as being anticipated by Bodenhöfer et al. ("Chiral Discrimination by Simple Gas Sensors, *Transducers* '97, June 16-17 1997).

Addressing claim 1, Bodenhöfer et al. teaches an analyte screening system ("Summary" on page 1391), comprising

a sensor array comprising a plurality of different differentially responsive sensors ("Thickness Shear Mode Resonators" and "Sensor Coatings" in the second column on page 1391);

a measuring device (implied by Figures 1 and 3, which show sensor responses), connected to the sensor array; and

a computer (implied by page 1393, which discusses the calculation of discrimination factors);

the measuring device detecting a signal from each of the plurality of different differentially responsive sensors when the sensor array is contacted with an analyte of interest and the computer assembling the signals from each of the sensors in the array into a sensor array signal profile (implied by Figures 3, which shows the sensor responses for two analytes);

wherein the computer is operative to compare the sensor array signal profile to at least one previously obtained signal profile from a standard sample not including the analyte of interest and having a known specific activity, chemical or physical property, or function, wherein the comparison of the sensor array signal profile is indicative of a specific activity, chemical or physical property, or function of the analyte of interest (implied by the first column on page 1394, which discusses results for an independent test set).

Addressing clams 2-4, the analytes in Bodenhöfer et al. et al. include chiral methylated amino acids (Figure 3).

Addressing clams 11, 12, and 15, the sensors change electrically/mechanically and have chemical coatings (piezoelectric sensors with sensor coatings are used. See "Thickness Shear Mode Resonators" and "Sensor Coatings" on page 1391).

Addressing clam 14, chirality is predicted ("Summary").

Claim Rejections - 35 USC § 103

24. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

25. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

26. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any

evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

27. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bodenhöfer et al. ("Chiral Discrimination by Simple Gas Sensors, *Transducers* '97, June 16-17 1997).

Addressing claim 9, Bodenhöfer et al. teaches an analyte screening system ("Summary" on page 1391), comprising

a sensor array comprising a plurality of different differentially responsive sensors ("Thickness Shear Mode Resonators" and "Sensor Coatings" in the second column on page 1391);

a measuring device (implied by Figures 1 and 3, which show sensor responses), connected to the sensor array; and

a computer (implied by page 1393, which discusses the calculation of discrimination factors);

the measuring device detecting a signal from each of the plurality of different differentially responsive sensors when the sensor array is contacted with an analyte of interest and the computer assembling the signals from each of the sensors in the array into a sensor array signal profile (implied by Figures 3, which shows the sensor responses for two analytes);

wherein the computer is operative to compare the sensor array signal profile to at least one previously obtained signal profile from a standard sample not including the analyte of interest and having a known specific activity, chemical or physical property, or function, wherein the comparison of the sensor array signal profile is indicative of a specific activity, chemical or physical property, or function of the analyte of interest (implied by the first column on page 1394, which discusses results for an independent test set).

Bodenhöfer et al. does not mention a library of signal profiles of standard samples; however, it would have been obvious to one with ordinary skill in the art at the time the invention was made to use a library of signal profiles for some standard samples so as to improve the quality or the property prediction. Indeed, such a library is implied since a training set of standard samples is used, and in fact necessary, to create the discriminant functions and principal components.

Addressing claim 10, Bodenhöfer .et al. does not mention using neural networks. Bodenhöfer et al. uses discriminant functions and principal components for predicting the chirality of the unknown analytes. However, as shown by Hoffeins et al., for example, neural networks were used at the time of the invention for classifying the signal profiles from a sensor array (abstract; col. 4, ll. 39-66; and Figure 1). Barring evidence to the contrary, such as unexpected results, the choice of pattern recognition software to use, whether of the statistical type, such as discriminant analysis or principal components analytes, or neural networks is just a

matter of optimizing the pattern recognition capability of the system. One with ordinary skill in the art would have considered such factors as the number and quality of the signal profiles of the standard samples, the number of sensors in the sensor array, the processing (computation) time, the amount of user interaction required to perform the pattern recognition, and acceptable error rates. Note that Hoffeins et al. also teaches a library of signal profiles of sensor array responses for standard samples (col. 5, ll. 14 – col. 6, ln. 26).

28. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALEX NOGUEROLA whose telephone number is (571) 272-1343. The examiner can normally be reached on M-F 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, NAM NGUYEN can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Alex Noguerola
Primary Examiner
AU 1753
May 6, 2004